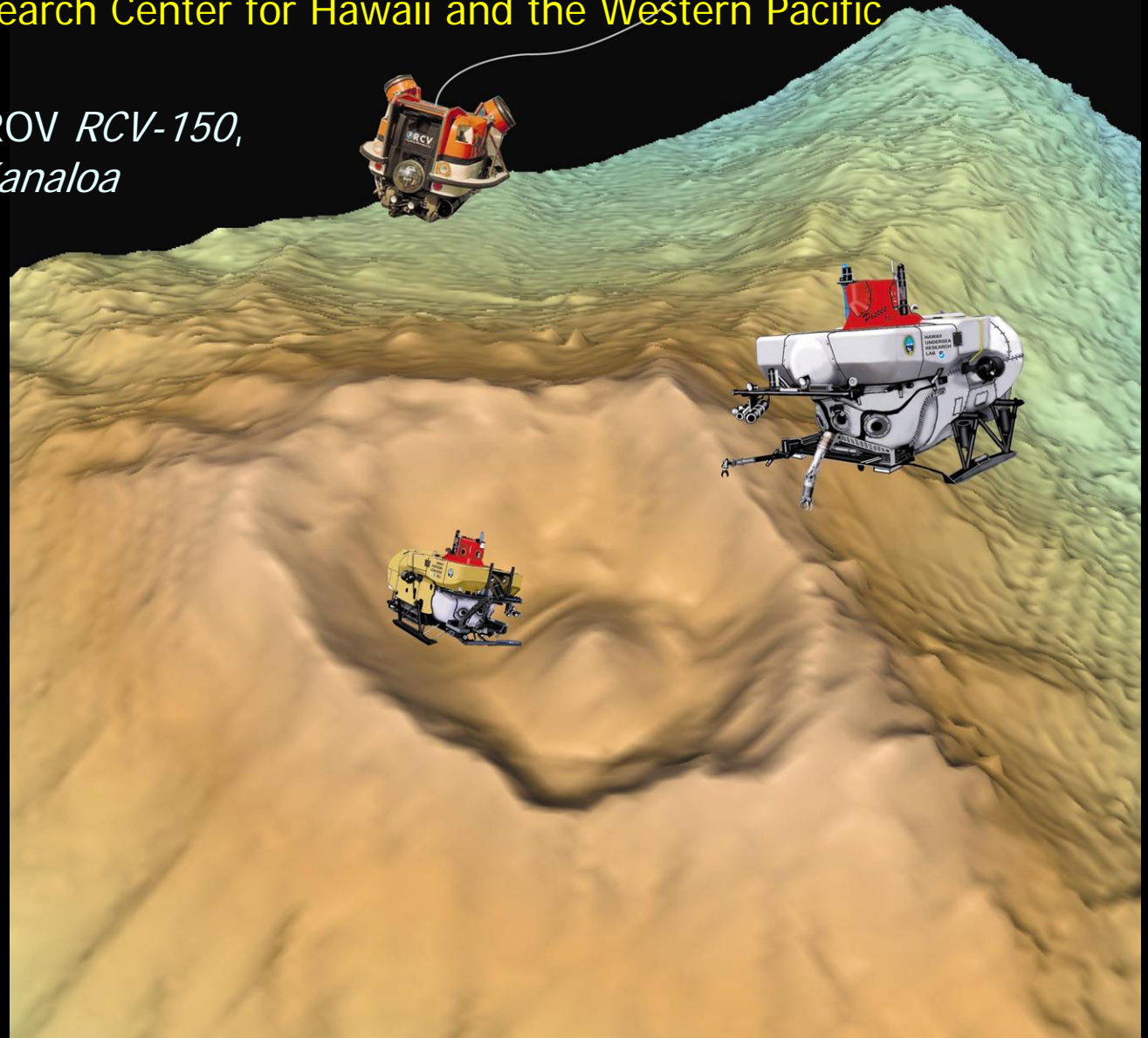
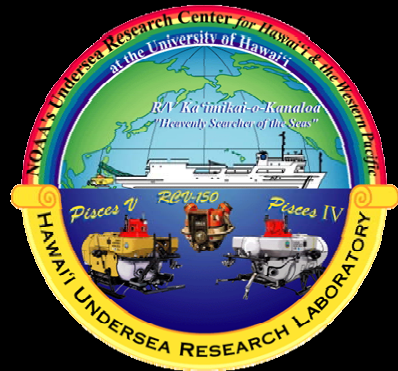


Hawai'i Undersea Research Laboratory

NOAA's Undersea Research Center for Hawaii and the Western Pacific

HOVs *Pisces IV & V*, ROV *RCV-150*,
and R/V *Ka'imikai-o-Kanaloa*



2006 *Pisces* upgrades

- *Pisces IV* refit for ABS 3-year Special Survey
- *Pisces V* receives new syntactic flotation to increase payload
- *Pisces V* gets new utility hydraulics system
- ABS annual survey on *Pisces IV & V*



2007 *Pisces* upgrades



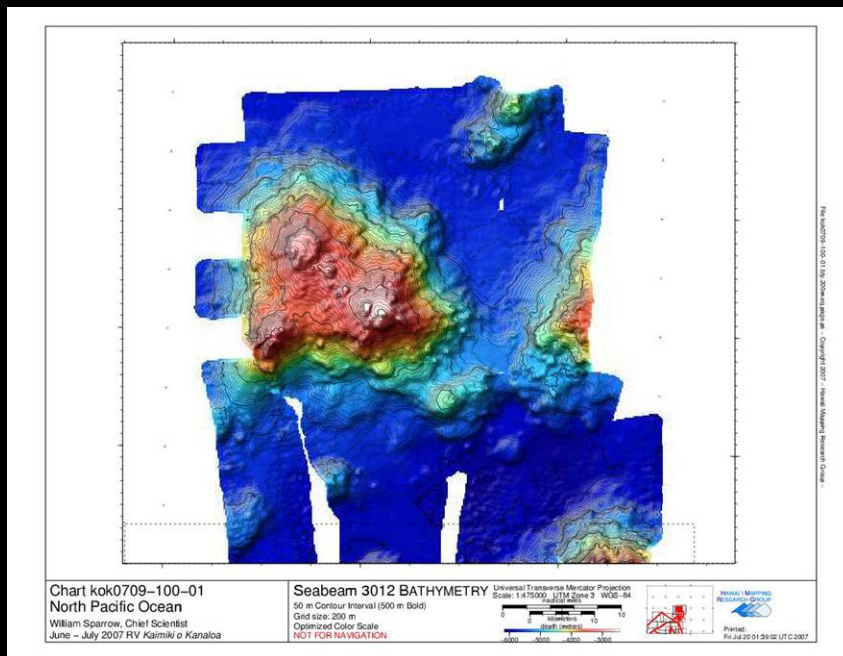
- *Pisces V* refit for ABS 3-year Special Survey
- Overhaul of *Pisces IV* ballast pack and trim weight assembly
- *Pisces V* gets new utility hydraulics system
- ABS annual survey on *Pisces IV & V*

2007 ROV *RCV-150* upgrades

- Power pack overhauled and moved to protected area (2006)
- Complete disassembly for inspection & maintenance
- Improved reliability of hydraulic power unit
- New fiber optic multiplexers
- New main video camera with increased resolution, added a wide angle cam

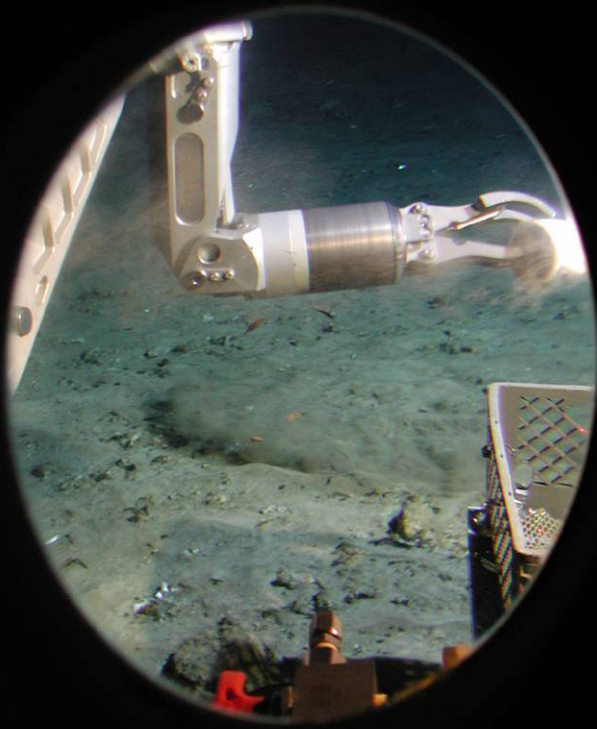


2007 Multibeam activities



- Upgrade to SeaBeam 3012 Phase 1
- Collaborating with OTG and HMRG for system maintenance and mapping support
- Two successful mapping cruises in 2007, non-HURL & HURL

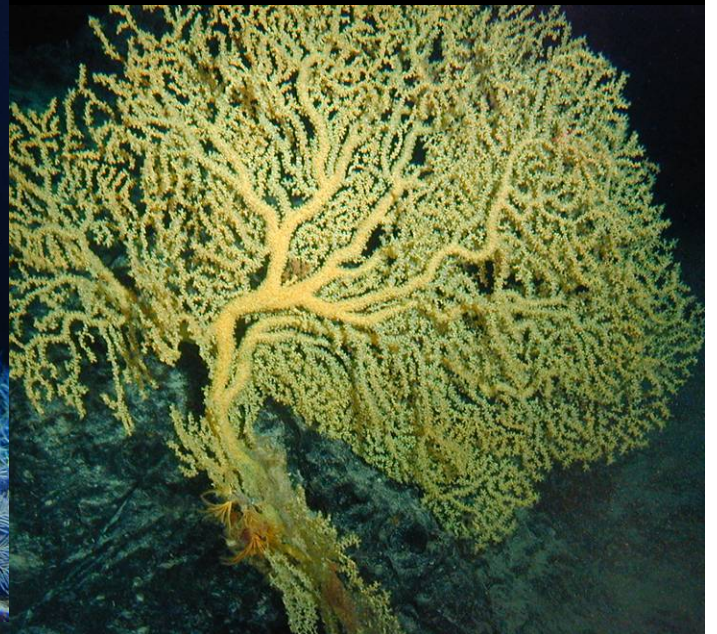
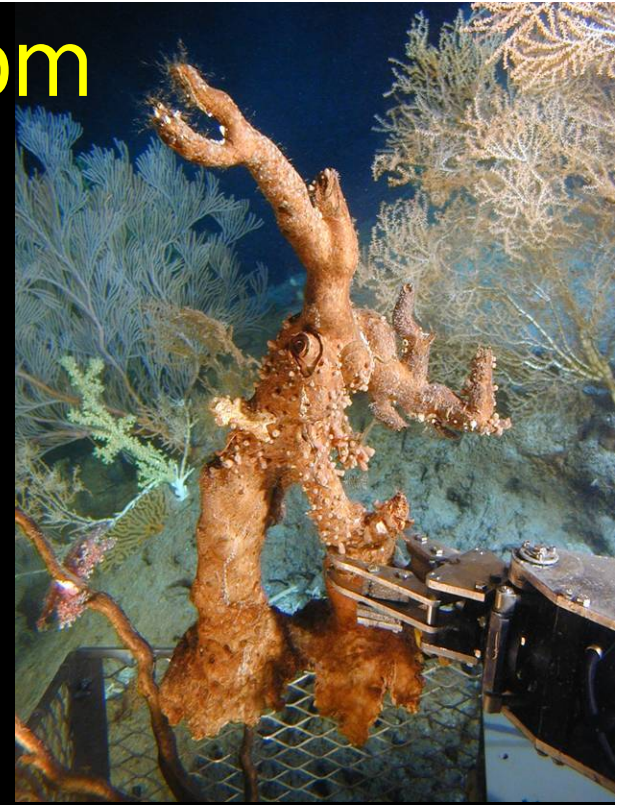
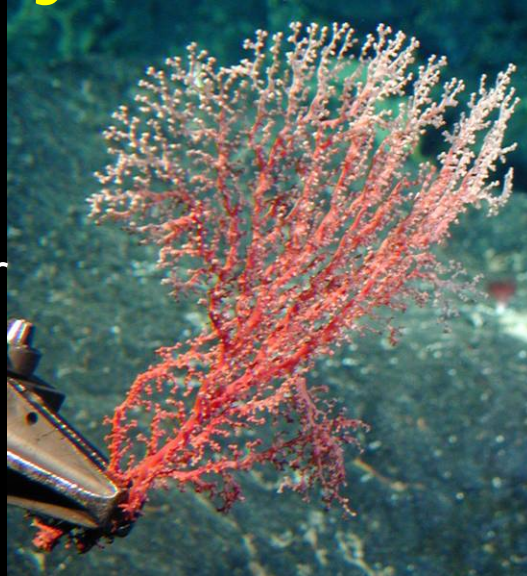
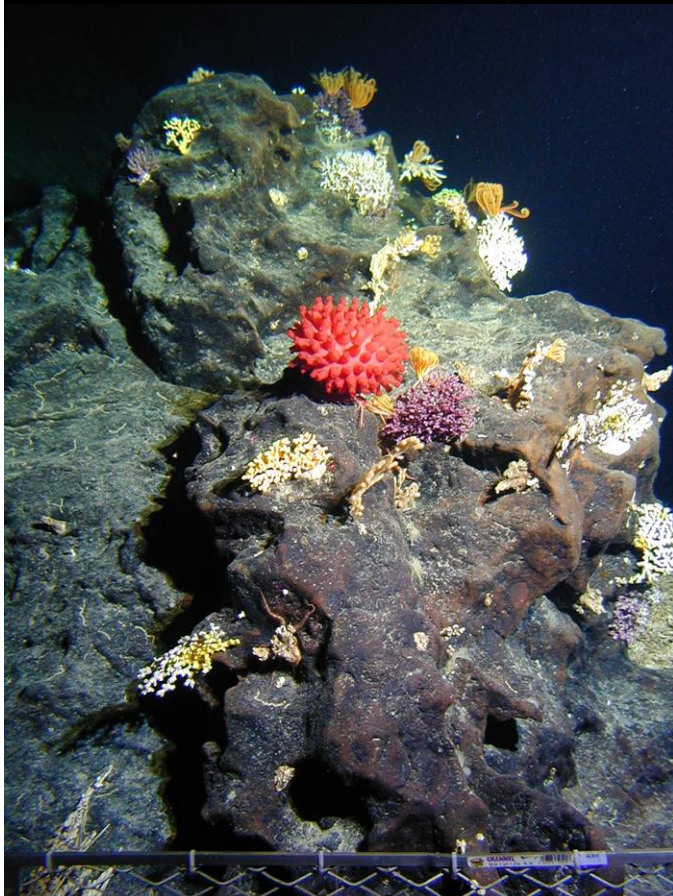
2007 Science Accomplishments



- 9 projects in the Main and Northwestern Hawaiian Islands
- ~43 HOV and ~30 ROV dives
- Varied research projects including deep sea coral fishery assessment, bio census of high-diversity habitats in the NWHI, climate variability in the North Pacific gyre from deep sea corals, bottomfish community study, deep reef study
- Instrument recovery, OTEC pipe survey

Climate Variability inferred from Deep-Sea Corals

(Rob Dunbar, multi-year & location project)

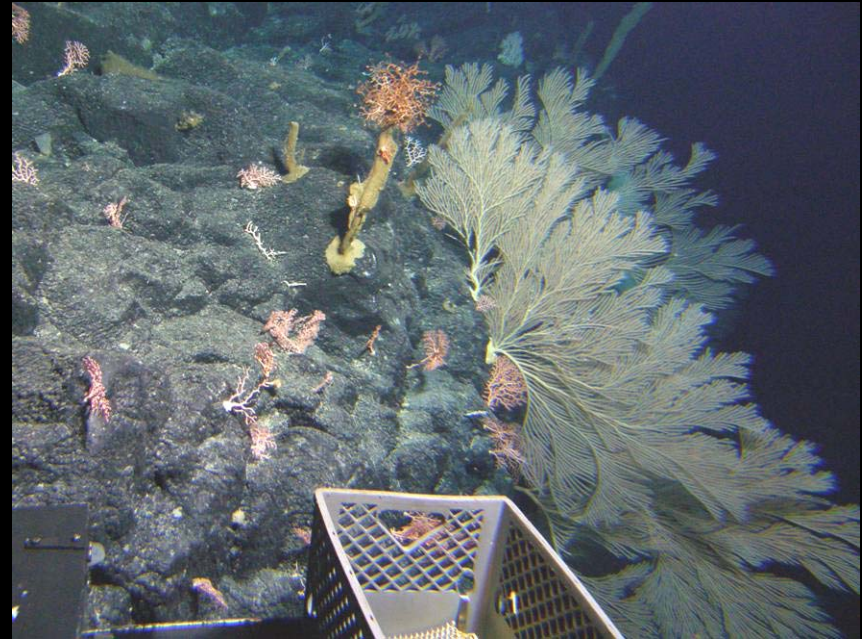


HURL research project on high density/diversity deepwater communities in the NWHI

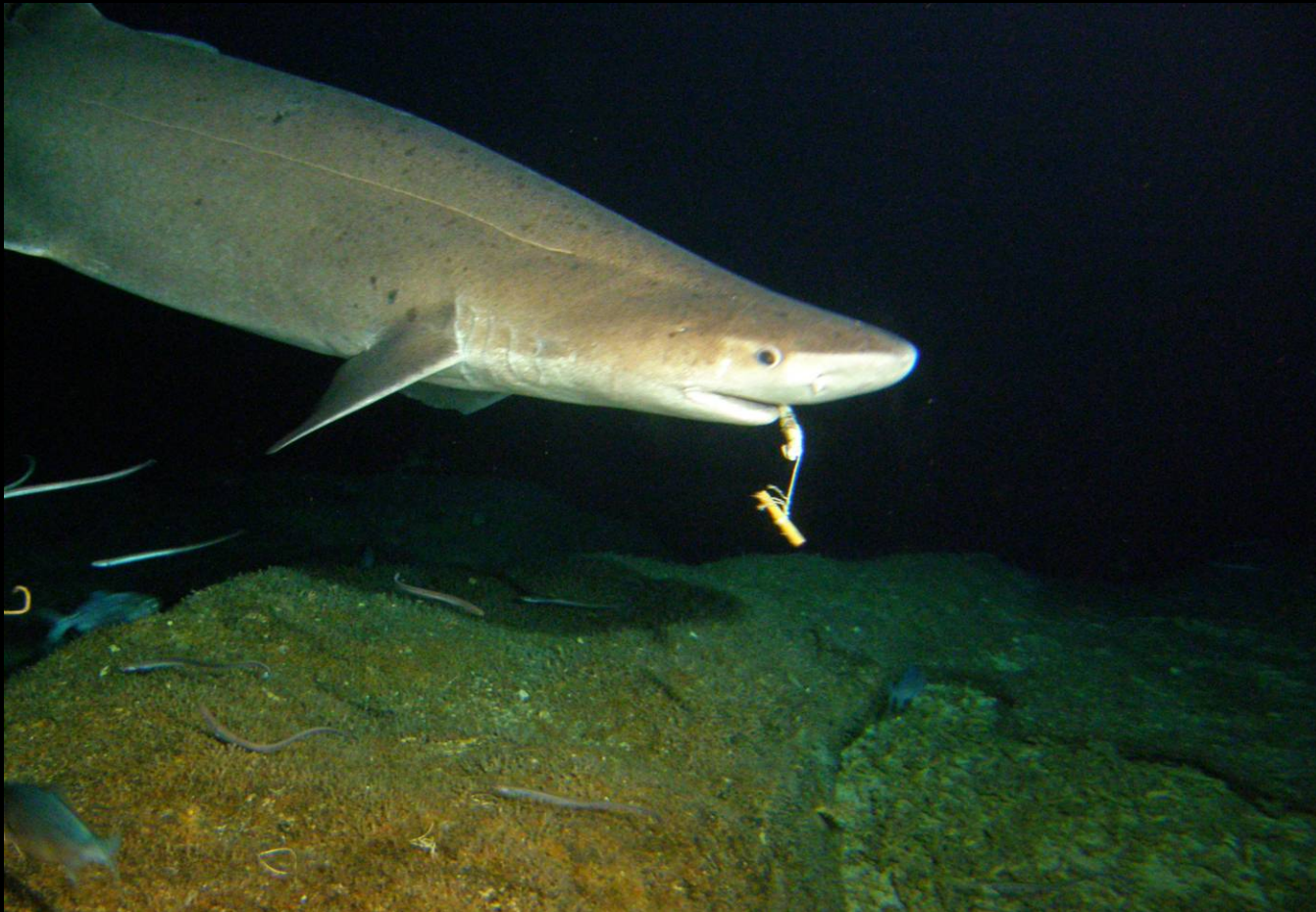


Christopher Kelley (HURL)

Seamounts and Rift Zone Ridges



Go ahead and feed the animals! (transponders) on Cross Seamount

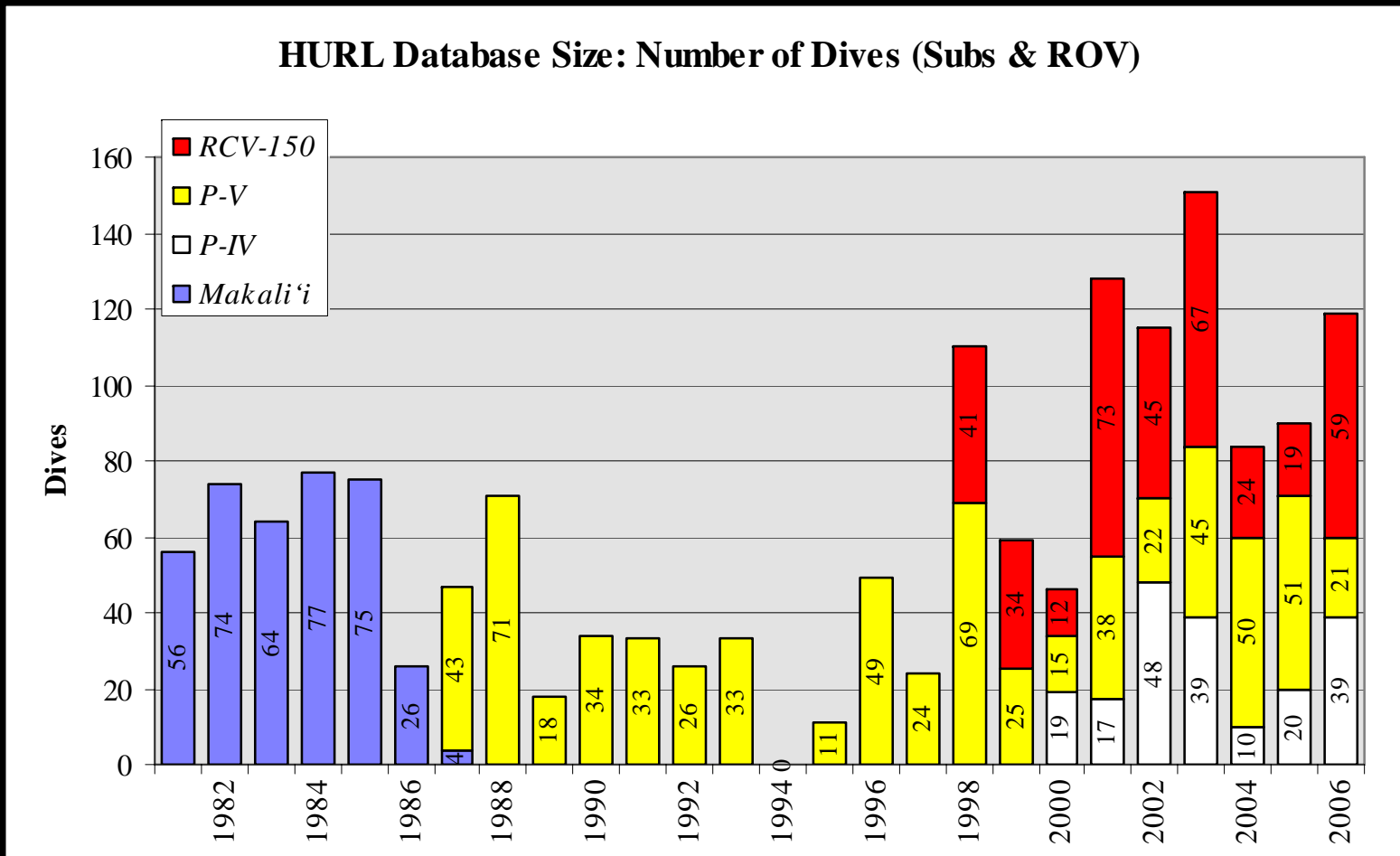


Kevin Weng (U. Hawaii) & Frank Parrish (NMFS)

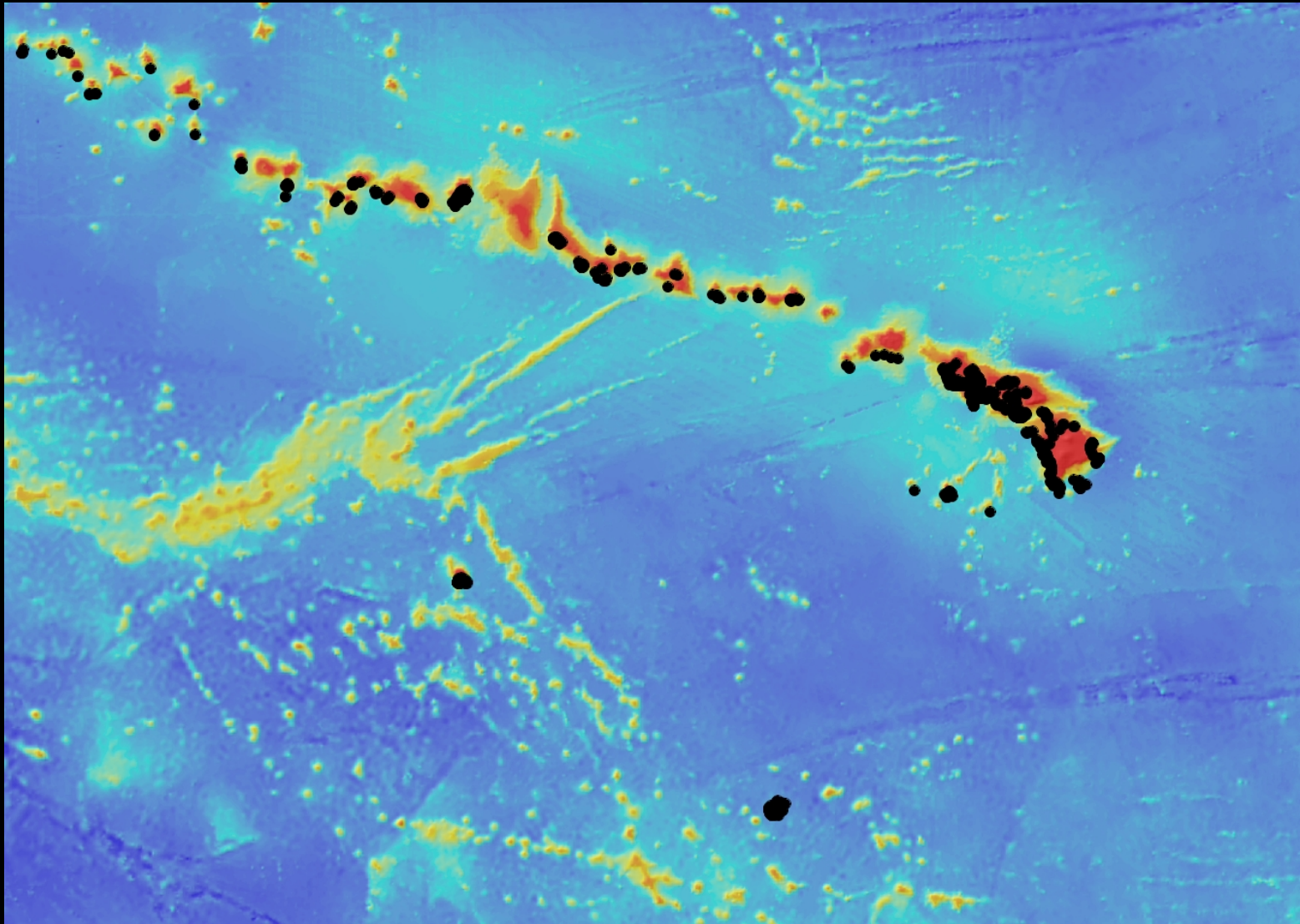
Long term HURL Dive Statistics

**HURL Data Center:
A Comprehensive Pacific
Benthic Ecology Database**

By the end of 2006 the database consisted of **1501 dives** (376 *Makali'i*, 153 *Pisces IV*, 657 *Pisces V*, and 315 *RCV-150*) that represented **7456 hours** of time underwater.



GIS of HURL Sub/ROV Dives



HURL Video Logging

- Latest protocol instituted in 2000.
- Fish and invertebrate records are logged in 5 minute increments.

Record #	Int	Org;Type	Org Name	Org #	Substrate	Complexity	Slope	Depth	Activity	Comments
P4-070-d1-013	35	fish;gempylid	Rexea nakamurai	1	sed	lr;nc	2	345-350	traverse	
P4-070-d1-014	35	fish;morid	Laemonema rhodochir	1	bedl;sed	mr;fsc	2	345	stop	pos 21 20.370/157 35.580
P4-070-d1-015	40	fish;gempylid	Rexea nakamurai	1	bedl;sed	mr;fsc	2	345	stop	0:41:51 - End d1
P4-070-d2-001	0	fish;gempylid	Rexea nakamurai	1	bedl;sed	mr;fsc	2	345	stop	
P4-070-d2-002	0	fish;percophid	Chrionema sp	1	sed+	lr;nc	2	344-345	traverse	start as transect & abort
P4-070-d2-003	0	cnidarian;scleractinian	scleractinian - single polyp	1	sed;bedl+	lr;fsc	2	344-345	traverse	
P4-070-d2-004	0	fish;ophichthid	ophichthid	1	sed;bedl	lr;fsc	2	344-345	traverse	
P4-070-d2-005++	5	cnidarian;gorgonian	Callogorgia formosa?	1	sed;bedl+	lr;fsc	2	344	stop	cntr 0:06:44 - vid (prev C.gilberti)
P4-070-d2-006	10	cnidarian;gorgonian	Callogorgia formosa?	1	sed;bedl+	lr;fsc	2	344	stop	pos 21 20.315/157 35.570
P4-070-d2-007	15	fish;ophichthid	ophichthid	1	sed	lr;nc	2	344-350	traverse	to nw; look for transect site
P4-070-d2-008	15	fish;argentiniid	Glossanodon struhsakeri	3	sed	lr;nc	2	344-350	traverse	
P4-070-d2-009	15	urchin;cidarid	Stereocidaris hawaiiensis	1	sed	lr;nc	2	344-350	traverse	
P4-070-d2-010	15	fish;ateliopid	Ijimaia plicatellus	1	bedl;sed	lr;fsc	2	344-350	traverse	
P4-070-d2-011	15	mollusk;cephalopod	Octopus sp	1	bedl+;sed	mr;fsc	2	344-350	traverse	
P4-070-d2-012	20	urchin;cidarid	Stereocidaris hawaiiensis	1	bedl+;sed	mr;fsc	2	344-350	traverse	
P4-070-d2-013+	20	fish;scorpaenid	scorpaenid	1	bedl+;sed	mr;fsc	2	344-350	traverse	cntr 0:20:37 - ladder
P4-070-d2-014+	20	fish;ateliopid	Ijimaia plicatellus	1	bedl;sed	mr;fsc	2	344-350	traverse	cntr 0:23:16 - line
P4-070-d2-015	20	fish;chaunacid	Chaunax umbrinus	1	bedl+sed	mr;fsc	2	350	stop	pos 21 20.450/157 35.634
P4-070-d2-016	25	fish;chaunacid	Chaunax umbrinus	1	bedl+sed	mr;fsc	2	350	transect	transect #1
P4-070-d2-017	25	fish;scorpaenid	scorpaenid	1	bedl+;sed	mr;fsc	2	350	transect	start nw, around headland to e
P4-070-d2-018	25	cnidarian;gorgonian	isidid	1	bedl+;sed	mr;fsc	2	350	transect	
P4-070-d2-019	25	cnidarian;antipatharian	Cirripathes spiralis	1	bedl+;sed	mr;fsc	2	350	transect	
P4-070-d2-020	25	cnidarian;antipatharian	Bathypathes conferta	1	bedl+;sed	mr;fsc	2	350	transect	
P4-070-d2-021	25	cnidarian;antipatharian	Antipathes sp 1	1	bedl+;sed	mr;fsc	2	350	transect	
P4-070-d2-022	30	cnidarian;gorgonian	Lepidisis olapa	2	bedl+;sed	mr;fsc	2	350	transect	
P4-070-d2-023	30	cnidarian;antipatharian	Bathypathes conferta	1	bedl+;sed	mr;fsc	2	350	transect	
P4-070-d2-024	30	cnidarian;antipatharian	Antipathes sp 1	2	bedl+;sed	mr;fsc	2	350	transect	



- ROV video (left) and sub video (right)
- Also now using digital still photos



Number of Records in the HURL Benthopelagic Megafauna Database

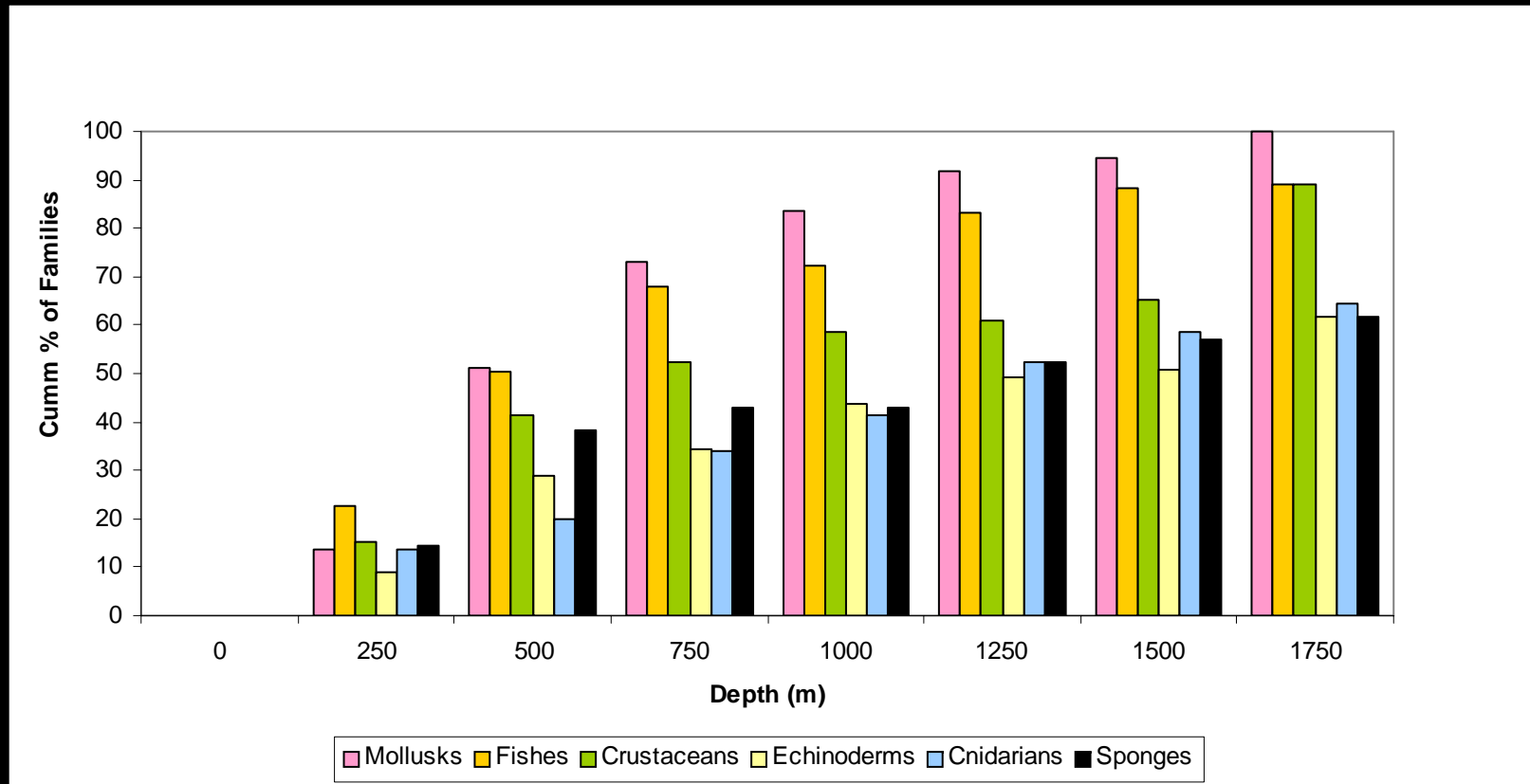
• Fishes	35,015
• Cnidarians	29,413
• Echinoderms	7,963
• Crustaceans	6,078
• Sponges	5,404
• Mollusks	899
• Other Inverts	841

TOTAL **85,613**



Mining the Database

Example: Megafauna Lower Depth Limits



- Planning to bring this online in the coming year -

Subset project

The HURL Online Deepwater Gallery



Brisingidae *Brisinga panopla* P5-298-d1-001c



- *Coming soon!* -



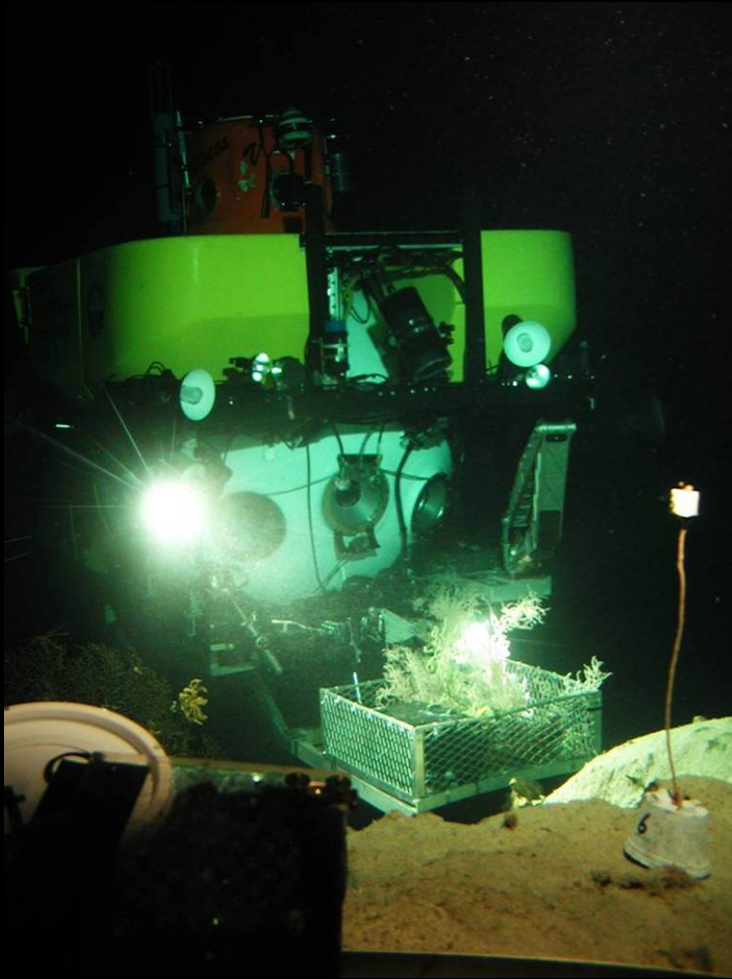
Goniasteridae *Mediaster ornatus* R-236-d1-010b



Brisingidae *Hymenodiscus* sp P5-486-d3-008a



HURL in 2008-2010

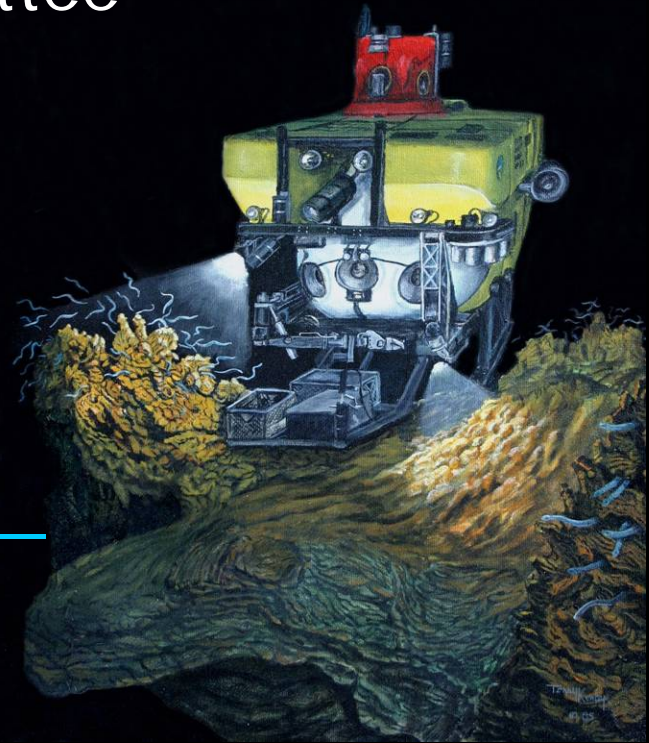


- 2008: U.S. Line Islands, Northwestern HI islands, Main HI islands – no new RFP
- Joint HURL/CRCP RFP out
- 2009: Joint project with West Coast & Polar Regions NURP center for NE Pacific, Alaska/Beaufort Sea, and Emperor/NWHI loop expedition (RFP out in early 2008) – seeking additional partners
- 2010: Possible return to the SW Pacific – presently seeking partners

Community participation

- HOV Safety Standards Committee
(*T. Kerby*)
- Replacement HOV oversight committee (*T. Kerby*)

Continued queries from our PIs and potential PIs about applying for NSF funding



Take a look at
www.soest.hawaii.edu/HURL

